RECEIVED
CENTRAL FAX CENTER

OCT 12 2007

I hereby certify that the documents stated below are being transmitted to the Central Facsimile Number, at the U.S. Patent and Trademark Office, Fax No. 571.273.8300 on 10-12-2007.

Name of Depositor

Signature

10-12-2007
Date of Deposit

JOHNS MANVILLE
IP Department
10100 W Ute Avenue
Littleton, Colorado 80127
(303) 978-2000

Case Docket No. 7304
Date: October 10, 2007

Mail Stop Appeals - Patents
COMMISSIONER OF PATENTS
PO Box 1450
Alexandria, VA 22313-1450

Re: Application of: Jaffee
Serial No.: 10/607,858
Filed: June 27, 2003
For: GYPSUM BOARD FACED WITH NON-WOVEN GLASS FIBER MAT

Art Unit: 1771
Examiner: CHOI, Peter Y.

Transmitted herewith is/are the following document(s) related to the above-identified application:

[ ] Notice of Appeal

[X] Appeal Brief in response to Notification of Non-Compliant Appeal Brief dated September 17, 2007, (9 pages). (Replacement of Section (V) of the original Brief).

[ ] Request for Oral Hearing

Please extend the time for filing the Notice of Appeal ____ ( ) month to _____.

The fee has been calculated as shown below:

Notice of Appeal	$510.00	
Appeal Brief	$510.00	
Request for Oral Hearing	$1030.00	
Fee for Extension of Time		
1 month $120.00, 2 months $460.00, 3 months $1050.00, 4 months $1640.00, 5 months $2230.00		
	Total	

[ ] Charge $_____ to Deposit Account No. 10-0625.

[X] Please charge any additional fees or credit overpayment to Deposit Account No. 10-0625.

Attorney

Robert D. Touslee
Registration No. 34,032
(303) 978-3927

RECEIVED
CENTRAL FAX CENTER

OCT 12 2007

Attorney Docket No.: 7304/ 0140-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Alan M. Jaffee	Group Art Unit:	1771
Serial No.:	10/607,858	Examiner:	Peter Y. Choi
Filed:	June 27, 2003		
For:	**Gypsum Board Faced With Non-Woven Glass Fiber Mat**		
Docket No.:	7304/0140-2		

Littleton, CO 80127
October 10, 2007

Board of Patent Appeals and Interferences
United States Patent and Trademanrk Office
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUBSTITUTE APPEAL BRIEF

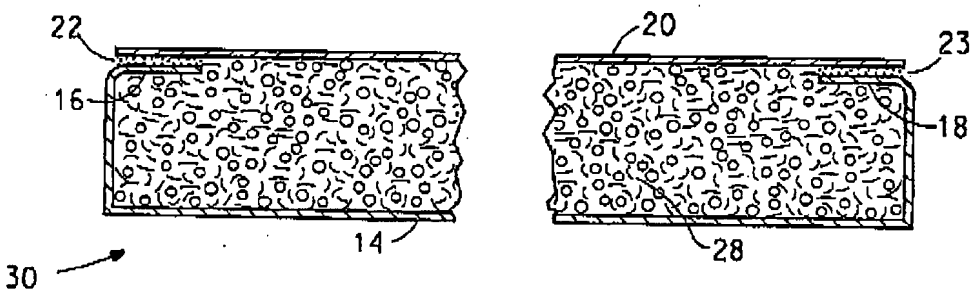
In response to the Notification of Non-Compliant Appeal Brief dated September 17, 2007, a replacement Section (V) – Summary of Claimed Subject Matter is submitted in furtherance of the Notice of Appeal entered June 20, 2007 in the above-identified application. Please replace Section (V) of the original Appeal Brief filed on August 17, 2007, with the replacement Section (V) submitted herewith.

It is submitted that no fees are required in connection with the present submission of replacement Section (V). If any fees are found to be due, please charge Deposit Account No. 100625.

(V) Summary of Claimed Subject Matter[1]

Applicant' invention, as recited by appealed claims 1-6, 8-15, 17-27, and 29-32, as amended, is directed to a nonwoven, fibrous mat comprising chopped glass fibers having a relatively small range of average fiber diameters, and a gypsum board faced with such a mat. The particular combination of fiber diameter and length delineated by the appealed claims affords a surprising and unexpected smoothness, permitting the claimed gypsum board to be painted or otherwise given an aesthetically pleasing finish after installation, without the extensive further surface preparation required with previous fibrous mat faced boards. In various preferred embodiments, the mat has a high permeability, permitting easy extraction of excess water ordinarily present during slurry-based manufacture of gypsum or other hydraulic set board. In addition, the gypsum board may exhibit a combination of desirable structural and functional features that render it fire resistant.

Fig. 1 of the instant application depicts one embodiment of a gypsum board of the invention, and is reproduced below for convenience.



[1] Page and line numbers in Section (V) refer to the specification as filed, unless otherwise noted.

Fig. 1
(USSN 10/607,858)

A. Independent claims 1, 27, 29, and 32.

Independent claim 1 is directed to a gypsum board (Fig. 1, #30) having first and second faces (i.e., front and back large surfaces, page 6, line 29) and a set gypsum core (Fig. 1, #28). First and second facers (Fig. 1, #14, #20) are affixed to the first and second faces, respectively. Claim 1 requires that the first facer be a fibrous mat. (Claims 20 and 21, both dependent from claim 1, recite embodiments in which the second facer comprises kraft paper and fibrous mat, respectively.) In the preferred embodiment depicted by Fig. 1, mats 14 and 20 are both fibrous mats, with a small portion of mat 14 being folded over the lateral edges of board 30 to form strips 16 and 18. Second mat 20 covers the second face of gypsum core 28 and is preferably adhesively attached to strips 16 and 18. A similar configuration may be used for kraft paper or other second facers. Ordinarily, gypsum board 30 is used in building construction, wherein it is installed by attaching it to construction members, such as wall studs or ceiling joists, positioned such that mat 14 faces a finished space in a building. See page 6, line 34, through page 7, line 11.

At least one of the facers of board 30 is a fibrous mat comprising a non-woven, glass fiber web bonded together with a resinous binder (page 7, lines 15-18). The glass fibers of this mat (e.g., mat 14 of Fig. 1) consist essentially of chopped glass

fibers having an average fiber diameter ranging from about 9.5 to 12.5 μm^2 (page 7, line 20; page 13, lines 9-11) and an average fiber length ranging from about 6 to 12 mm (page 8, line 29; original claim 7). Use of a non-woven glass fiber mat imparts a significant improvement in fire resistance over paper-faced gypsum boards.

Independent claim 27 recites, in Jepson form, an improved gypsum board having first and second faces and a non-woven fibrous mat affixed to at least one of the faces (page 6, lines 28-30. The mat comprises a glass fiber web bonded together with a resinous binder (page 7, lines 15-17). The chopped glass fibers of the mat consist essentially of glass fibers having an average fiber diameter ranging from about 9.5 to 12.5 μm (page 7, lines 17-20; page 13, lines 9-11) and an average fiber length ranging from about 6 to 12 mm (page 8, lines 28-29).

Independent claim 29 is a subcombination claim directed to a fibrous mat (e.g., mat 14 of Fig. 1), such as that employed in the gypsum board of claim 1 (e.g., board 30 of Fig. 1). Specifically, the fibrous mat of claim 29 comprises a non-woven glass fiber web bonded together with a resinous binder (page 7, lines 15-18). The glass fibers of the web consist essentially of chopped glass fibers having an average fiber diameter ranging from about 9.5 to 12.5 μm (page 7, line 20; page 13, lines 9-11) and an average fiber length ranging from about 6 to 12 mm (page 8, line 29; original claim 7).

[2] It is to be noted that the 9.5 to 12.5 μm range is equivalent to 11 ± 1.5 μm, as set forth in the specification at page 7, line 20 and page 8, lines 28-29.

Independent claim 32 delineates a hydraulic set board (page 6, lines 28-30) comprising a hydraulic set material layer having first and second faces. "Hydraulic set material" is expressly defined at page 6, lines 30-33:

> **By hydraulic set is meant a material capable of hardening to form a cementitious compound in the presence of water. Typical hydraulic set materials include gypsum, Portland cement, pozzolanic materials, and the like.**

Like the gypsum board of claim 1, the hydraulic set board of claim 32 employs first and second facers affixed to the first and second faces. At least one of the facers is a fibrous mat comprising a non-woven, glass fiber web bonded together with a resinous binder (page 7, lines 15-18). The glass fibers of this mat (e.g., mat 14 of Fig. 1) consist essentially of chopped glass fibers having an average fiber diameter ranging from about 9.5 to 12.5 μm (page 7, line 20; page 13, lines 9-11) and an average fiber length ranging from about 6 to 12 mm (page 8, line 29; original claim 7).

Surprisingly and unexpectedly, gypsum and hydraulic set board faced with the present nonwoven glass fiber mat in accordance with the invention, wherein the fibers consist essentially of chopped glass fibers having an average fiber diameter ranging from about 9.5 to 12.5 μm and an average fiber length ranging from about 6 to 12 mm, has a smoother surface than boards made with mats employing either larger or smaller diameter fibers (page 7, lines 27-32).

The smooth surface of the claimed gypsum board permits it to be directly painted to achieve an aesthetically pleasing finish. While conventional paper-faced construction board products are also directly paintable, previous glass fiber mat faced board products are not. Instead, they need a plaster skim coating or like surface

preparation (page 6, lines 8-11, compare page 4, lines 4-11 and 20-33). As a result of its smooth surface, the present gypsum or hydraulic set board is thus simpler to make and use than previous boards having glass fiber facers, that required extensive additional preparation steps to attain an acceptable surface finish. Without such preparation, even multiple coats of paint are insufficient to obscure the perceptible unevenness replicating the underlying roughness of the glass mat surface of prior art boards.

It is especially surprising and significant that the aforementioned 9.5 to 12.5 μm fibers result in smoother board than that obtained with fibers having a smaller diameter (page 8, lines 2-3). It is likewise surprising and unexpected that a gypsum board having a facer wherein the average glass fiber diameter is 9.5 – 12.5 μm and the average fiber length is 6 – 12 mm is smoother than board faced with mat having the same diameter but fiber length of 19 mm (3/4"). See the Declaration Under 37 CFR 1.132 of inventor Jaffee dated April 26, 2006 at §§15, 19.

B. Claims 2-6, 8-15, 17-19, 21-24, and 26 (dependent from base claim 1).

Claims 2-6, 8-15, 17-19, 21-24, and 26, which depend directly or indirectly from base claim 1, are directed to preferred embodiments of a gypsum board.

Claims 2-3 delineate preferred compositions of glass fiber used in the non-fibrous mat facer. Claim 2 recites a Markush group of preferred glass fiber materials (page 8, lines 15-17), while claim 3 calls for E-glass fibers (page 8, line 21).

Claims 4-6 and 8 recite dimensional characteristics of preferred glass fibers used in the non-fibrous mat facer. Claims 4-6 respectively require that the chopped glass fibers have at least about 90%, 95%, and 97% by weight of fibers having a diameter ranging between about 9.5 and 12.5 μm (page 7, lines 17-20). Claim 8 calls for at least a majority of the chopped glass fibers to have a fiber length ranging from about 6 to 18 mm (page 7, lines 22-23).[3]

Claims 9-15 relate to the resinous binder used in the non-woven glass fiber mat. Claim 9 (dependent from claim 1) recites, in Markush form, a preferred resinous binder (page 8, line 31 through page 9, line 5), while claim 10 calls for a more preferred binder of modified acrylic latex (page 9, lines 25-27 and 33-34). Claim 11 (dependent from claim 9) further requires the presence of a cross linker in an amount ranging up to about 10 weight percent (page 9, line 30). Claims 12 and 13 (also dependent from claim 1) further call for about 2 to 5 weight percent of the cross linker and a melamine formaldehyde containing binder, respectively (page 9, lines 30-32). Claim 14 recites a preferred glass transition temperature ranging from about 15 to 45°C for the resinous binder (page 9, lines 7-8). Claim 15 requires the further presence of at least one water repellant agent in the binder (page 9, line 12).

Claims 17-19 respectively delineate preferred basis weights for the fibrous mat of about 0.6 to 2.2; about 0.9 to 2.2; and about 1.25 ± 0.2, all measured in pounds per 100 square feet (page 10, lines 30-32).

[3] It is noted that the 12 ± 6 mm recited at page 7, line 20, is equivalent to 6 to 18 mm.

Claims 23-26 set forth preferred forms of the gypsum core. Claims 23-25 respectively call for the core to comprise at least one water repellant agent (page 13, line 18), reinforcing fiber (page 13, lines 15-16), and a biocide (page 13, line 17). Claim 26 calls for a board having flame resistance sufficient to pass the test of ASTM Method E84, Class 1 (page 10, lines 19-22).

C. Claims 30-31 (dependent from base claim 29).

Claims 30-31 are directed to preferred embodiments of a fibrous mat. Claim 30 calls for a mat wherein at least about 90% by weight of said chopped glass fibers have a diameter ranging between about 9.5 and 12.5 μm (compare claim 4). Claim 31 requires a mat having a permeability of at least about 300 cfm/ft^2 measured by the Frazier test (page 11, lines 26-31 and 34).

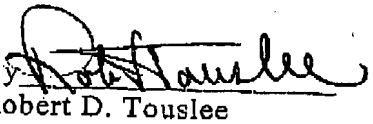
Conclusion

In light of the Appeal Brief filed on August 17, 2007, and the foregoing replacement Section (V) – Summary of Claimed Subject Matter, it is respectfully submitted that the gypsum board of claim 1 (and claims 2-6 and 8-26 dependent thereon); the improved gypsum board of claim 27; the non-woven fibrous mat of claim 29 (and claims 30-31 dependent thereon); and the hydraulic set board of claim 32 are not disclosed or suggested by any combination of the art references applied, and thus meet the conditions for patentability required by 35 USC §103(a).

Accordingly, reversal of the rejection of claims 1-6, 8-15, 17-27, and 29-32 under 35 USC §103(a), and allowance of the present application, are earnestly solicited.

Respectfully submitted,

Alan M. Jaffee

By 
Robert D. Touslee
(His Attorney)
Reg. No. 34,032
(303) 978-3927

0140-2 7304-SAB-r1